OCULAR CYSTICERCOSIS IN INDIA*†

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OCULAR infestation by *Cysticercus cellulosae* occurs so rarely as to excite curiosity. Scholl and Soemmerring (1829) discovered a live *Cysticercus* cyst in the anterior chamber, Baum (1838) reported a case of conjunctival cysticercosis, and von Graefe (1866) reported the ophthalmoscopic observation of intra-ocular cysticercosis and performed a successful operation. The subject was reviewed by Laignier-Terrasse (1932), Toulant (1939), and Lech Junior (1949). Elliot and Ingram (1911), Wright (1923–25), Reddy and Reddy (1957), Mathur and Abraham (1961), and Reddy and Satyendran (1964) reported cases from India.

This paper reviews eleven cases in patients of poor social standing seen at this hospital from 1958–1964. The Table (opposite) gives the location and duration of the cysts.

Subconjunctival Cyst

The presenting symptom was slight discomfort due to an unsightly small hemispherical swelling on the white of the eye, which had been present for from 2 weeks to 8 months. Only one eye was involved and in each case only one cyst was present. All were close to the rectus muscles (Fig. 1); they were situated under the muscle sheath and attached to the superficial fibres (medial rectus (5), lateral rectus (2), inferior rectus (1), superior rectus (1)). There was no other abnormality except slight conjunctival congestion in two cases.

FIG. 1.—Small hemispherical swelling in medial quadrant of the white of the left eye in relation to the medial rectus muscle.

FIG. 2.—Body of larva lying within a cystic cavity, the wall of which is formed by the host tissue showing infiltration of chronic inflammatory cells. $\times 22$.

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TABLE
ANALYSIS OF CASES

Case No.	Date	Sex	Age (yrs)	Duration of Cyst (wks)	Position of Cyst
1	10-2-58	F	10	6	Subconjunctival, lateral quadrant
2	12-11-59	F	12	32	Subconjunctival, medial quadrant
3	26-12-59	M	3	4	Subconjunctival, medial quadrant
4	10-10-60	F	15	2	Subconjunctival, inferior quadrant
5	22-10-60	M	27	3	Anterior chamber
6	8-2-61	F	15	6	Subconjunctival, medial quadrant
7	19-6-61	M	22	12	Subconjunctival, medial quadrant
8	10-7-62	F	7	4	Subconjunctival, lateral quadrant
9	29-7-63	M	30	3	Intravitreal
10	29-8-63	F	9	2	Subconjunctival, superior quadrant
11	28-11-64	M	13	4	Subconjunctival, medial quadrant

In all cases ocular movements were normal. In Case 10 the parasite caused an acute inflammatory reaction with a conjunctival abscess. It is difficult to diagnose a *Cysticercus* cyst in the absence of any characteristic sign. Although a greyish streak on the cyst has been described, it was not seen in any of our cases. All the cysts were carefully dissected out, avoiding injury to the rectus muscle fibres. Histological examination confirmed the diagnosis (Fig. 2), the larval body in the sections being characterized by its suckers, hooklets, and tortuous lumen. The postoperative history was uneventful.

Intravitreal Cyst

Case 9 had loss of vision in the left eye for 3 weeks. Ophthalmoscopic examination revealed a *Cysticercus* cyst in the vitreous with an exudative retinal detachment. The cyst was removed by the posterior route and the diagnosis confirmed histologically.

Anterior Chamber

The live *Cysticercus* in Case 5 has already been reported in detail (Mathur and Abraham, 1962).

General examination did not reveal any other systemic infestation in any of our cases. Repeated stool examinations were negative and blood counts were normal without any eosinophilia. Only two patients had eaten pork (Cases 5 and 9).

Comment

Taenia solium, which inhabits the small intestine of man, has world-wide distribution. Ocular infestation by its larva, *Cysticercus cellulosae*, is very rare except in highly endemic areas. Human infestation results from eating inadequately cooked pork or vegetables growing above the ground, such as cabbage, cauliflower, etc. In India cysticercosis is common in pigs but infrequent in man (Maplestone and Bhaduri, 1937).

Our eleven cases were seen at the rate of one or two per year among a total of 138,195 attendances in the 7 years 1958–1964. This suggests that the incidence is increasing, but it must be remembered that more people are now availing themselves of hospital facilities.

The cysts are usually multiple and may be deposited in any tissue, the eye, orbit, and nervous system being most frequently affected. The embryo forms a globular translucent cyst which causes a foreign body reaction, and if it is ruptured a suppurative inflammation occurs that may destroy the eye. Ocular cysts are usually solitary but may be multiple (Becker, 1867), and may occur in any part of the eye. The posterior segment is more often affected in Western countries, but in India the cysts are more often subconjunctival. Reddy and Satyendran (1964) had six subconjunctival cysts in ten cases, and we had nine out of eleven.

A history of intestinal infestation may assist diagnosis, but the parasite may be evacuated before the ocular symptoms appear. Eosinophilia and complement-fixation tests are also unreliable guides to diagnosis.

Treatment consists of careful surgical excision of the cyst, and in intra-ocular cases this should be undertaken at an early date before the intra-ocular structures have suffered irreversible damage.

Summary

Eleven cases of ocular *Cysticercus cellulosae* are reported. All the cysts were removed surgically and the diagnosis was confirmed histologically. In all but two cases the cyst was subconjunctival and not intra-ocular.

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